

(12) UK Patent Application (19) GB (11) 2 254 811 (13) A
(43) Date of A publication 21.10.1992

(21) Application No 9108385.7

(22) Date of filing 19.04.1991

(71) Applicant
Minnesota Mining and Manufacturing Company
(Incorporated in the USA - Delaware)

PO Box 33427, 3M Center, Saint Paul,
Minnesota 55144, United States of America

(72) Inventor
David Roy Bastow

(74) Agent and/or Address for Service
Lloyd Wise, Tregear & Co
Norman House, 105-109 Strand, London,
WC2R 0AE, United Kingdom

(51) INT CL⁵
B05C 21/00

(52) UK CL (Edition K)
B2L LCVA

(56) Documents cited
EP 0334360 A2 EP 0307932 A1 EP 0303270 A1
EP 0303268 A1 EP 0262946 A2 EP 0249444 A2
EP 0248652 A2

(58) Field of search
UK CL (Edition K) B2L
INT CL⁵ B05C 21/00

(54) Masking using a foam web

(57) A masking element comprising a foam web 2 formed into a closed curve defining upper and lower surfaces with a layer of adhesive on at least its lower surface for mounting the element on a substrate.

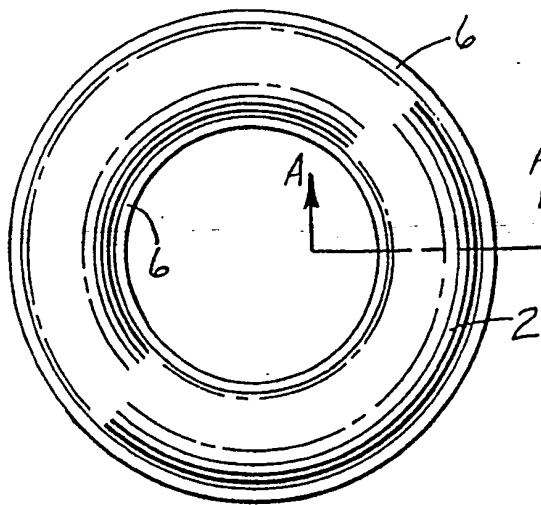


Fig. 1

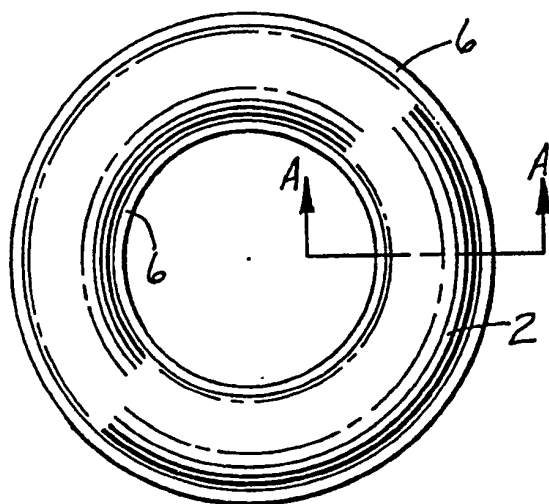


FIG. 1

FIG. 2

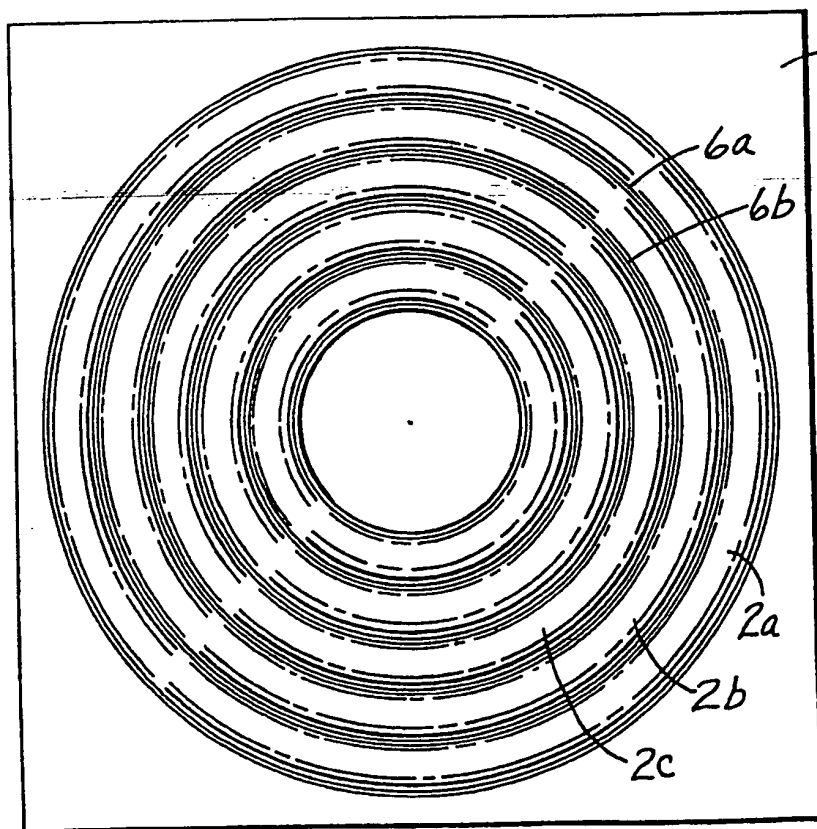
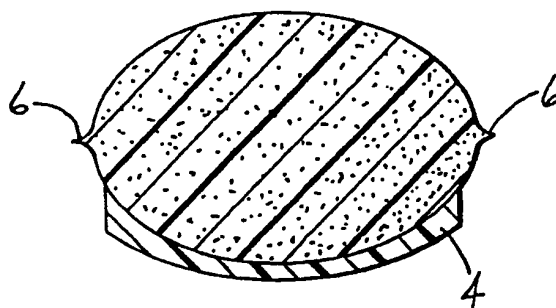


FIG. 3

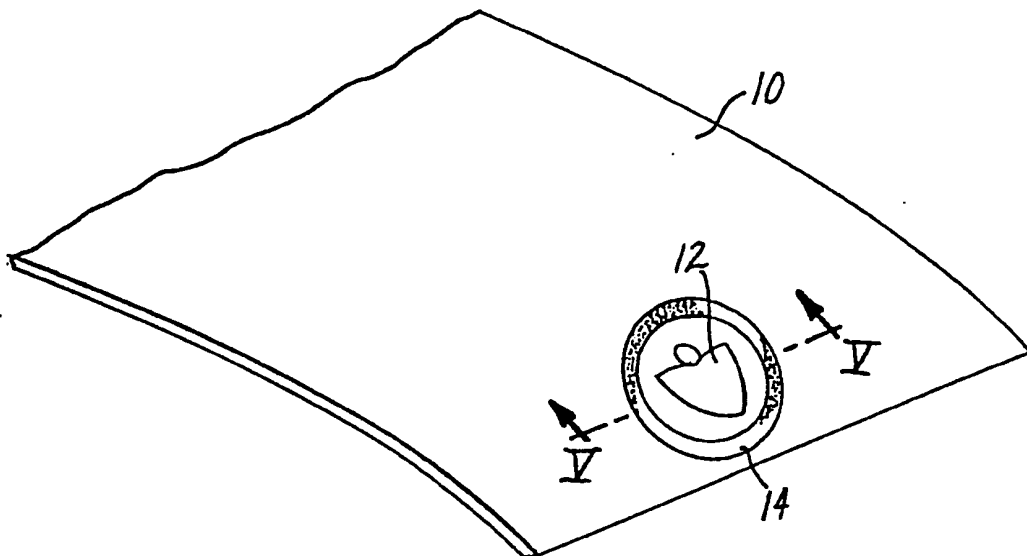


Fig. 4

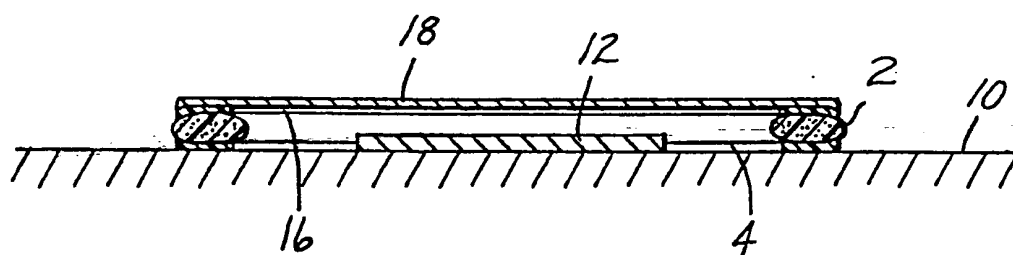


Fig. 5

MASKING METHODS USING A FOAM WEB

The present invention relates to the masking of an exposed area of a surface from an adjacent area to facilitate treatment of the exposed area by for example paint spraying. The invention has particular, but not exclusive application in the motor industry where selective repairs must be effected on painted surfaces. The invention also relates to a masking element for use in such methods.

Various masking techniques are known for isolating areas from adjacent areas on a surface. Such isolation is needed in a number of situations where treatment of one form or another is to be applied exclusively to a specific area or region. Masking techniques are particularly useful when the treatment involves the application of a fluid medium. Examples are chemical treatments, painting and decorating. Typically, the treatment areas are isolated from their surroundings by a masking tape which defines the boundary thereof.

The present invention is directed at a masking element which can be manufactured and sold as a complete unit ready for immediate use. More particularly, the invention provides a masking element comprising a foam web formed into a closed curve defining upper and lower surfaces, with a layer of adhesive on at least the lower surface for mounting the element on a substrate. The closed curve is typically circular or elliptical, but can be polygonal or any chosen shape. The actual form of the curve is not critical, but is preferably chosen such that a plurality of elements can be formed simultaneously from a single sheet of material. Such a plurality of elements can be arranged concentrically, and stamped from such a sheet simultaneously. Further, such a plurality of elements can be marketed in this form, with elements being available for removal from the sheet as they are required.

Preferred masking elements according to the

invention are formed from a foam material, and can conveniently be stamped from a sheet of foam which already has a layer of adhesive on at least one face thereof. The inner and outer peripheries of the element
 5 can be defined by pressure welded seams formed during the stamping, and where a plurality of concentric elements are formed simultaneously, radially adjacent elements can be attached to each other along their respective peripheries, and by such pressure welded seams, which may
 10 be readily tearable.

The invention will now be described by way of example and with reference to the accompanying schematic drawings wherein:

Figure 1 is a plan view of a circular masking
 15 element according to the invention;

Figure 2 is a section taken on line A-A of Figure 1;

Figure 3 is a plan view of a sheet of material in which a plurality of masking elements of the invention have been stamped out;

20 Figure 4 is a perspective view of a part of a car hood; and

Figure 5 is cross-section taken on line V-V of Figure 4.

25 As shown in Figures 1 and 2, a masking element according to the invention takes the form of an endless length 2 of foam web having a generally elliptical cross-section. On the lower surface of the web 2 is applied an adhesive coating 4, which as can be seen from
 30 Figure 2, extends around substantially half the peripheral surface of the web 2. A typical height of the section shown in Figure 2 is 15mm, and a typical breadth is 20mm. These are preferred minimum values for webs made from polyether foam which is particularly suitable,
 35 but other plastics foams can also be satisfactory. Similarly, a typical minimum outside diameter for a masking element of the kind shown in Figure 1 is 95mm, which enables the element to isolate an area of around

70cm².

The foam web forming the mask element shown in Figures 1 and 2 is as noted above, preferably a plastics foam. Typically, it can be a foam made in accordance
5 with our published European Patent Specification No. 0384626, with pressure welded seams 6 defining either lateral side of the web section. Forming the element in this way makes it particularly suitable for batch
10 production, in which a plurality of elements can be simultaneously stamped out of a sheet of foam material, broadly as illustrated in Figure 3.

In Figure 3 five concentric elements are shown formed in a sheet 8 of foam material. The webs 2a, 2b and 2c of radially adjacent elements are separated from
15 one another by pressure welded seams 6a and 6b. The seams are tearable, but as shown the sheet 8 remains intact under normal handling conditions. When one of the elements is required, its respective seams are torn to separate it from the remainder of the sheet.

20 The sheet 8 shown in Figure 3 may have a layer 4 of adhesive (not shown) coated thereon prior to it being stamped to identify the respective masking elements. After stamping, and as shown in Figure 2. The material contracts around the body of each web 2 resulting in the
25 adhesive coating 4 extending around either side of the web. It will be appreciated that an adhesive coating of this form may be applied to both surfaces of the foam 8, to result in a web likewise having two adhesive coatings. The adhesive coatings need not be of the same aggressive
30 strength. Reference is directed to our co-pending Application filed today in respect of an invention relating to the use of strips similar to the web 2 described herein with two adhesive coatings. Release liners can also be applied to the sheet 8 to facilitate
35 handling not only of the sheet, but also of the masking elements formed therein. If desired, the release liners can be cut into separate rings, or perforated to permit easy separation.

Figures 4 and 5 illustrate the use of a masking element according to the invention. Figure 4 shows the front section of a car hood 10, most of which is to be re-painted. An emblem 12 is mounted on the hood 10, and as the paintwork around the emblem 12 does not require re-painting, this area of the hood is to be isolated from the remainder. To achieve this, an endless element 14 according to the invention is mounted on the hood 10 to surround the emblem 12. This is shown more clearly in Figure 5.

As shown in Figure 5, the web 2 of the element 14 is secured to the hood 10 by the adhesive layer 4. In this embodiment, an adhesive coating 16 is also formed on the opposite surface of the web 2, and a sheet 18 of paper or other suitable material is laid thereover and attached to the web 2 by the adhesive 16 to protect the emblem and its immediate surroundings. Alternatively of course, an adhesive coating can be separately applied to the web 2, or the sheet 18 could be formed with an adhesive coating of its own suitable for securing the sheet to the uncoated exposed surface of the web 2.

The sheet 18 can be cut to size before or after attachment to the element 14. In some embodiments of the invention, the element 14 can be provided with a masking sheet already attached. Generally though, elements according to the invention will be provided without such sheets, and usually in a batch as illustrated in Figure 3. This will permit the element to be used to mask an enclosed area as illustrated in Figures 4 and 5, or to surround such an enclosed area while leaving it exposed for treatment. In the latter application, any sheet of material applied will extend outwards from the element rather than inwards.

Elements according to the invention have particular benefit in effecting paint repairs. The use of a foam web facilitates the achievement of a soft edge between painted and unpainted areas. However, the elements are also useful in applying other surface treatments such as

coating, plating and phosphorising.

CLAIMS

1. A masking element comprising a foam web formed into a closed curve defining upper and lower surfaces
5 with a layer of adhesive on at least the lower surface for mounting the element on a substrate.
2. A masking element according to Claim 1 wherein the closed curve is a circle.
3. A masking element according to Claim 1 wherein
10 the closed curve is a polygon.
4. A masking element according to any preceding Claim wherein said upper and lower surfaces are curved.
5. A masking element according to Claim 4 wherein the web has an elliptical cross-section.
- 15 6. A masking element according to any preceding Claim wherein the web is stamped out in the shape of the closed curve from a sheet of foam with a layer of adhesive on one face thereof.
7. A masking element according to Claim 6 wherein
20 the inner and outer peripheries of the element are defined by pressure welded seams formed during the stamping.
8. A plurality of substantially concentric masking elements according to Claim 6 or Claim 7 formed in a
25 common sheet of foam.
9. A plurality of elements according to Claim 8 wherein radically adjacent elements are attached to each other along respective peripheries thereof.
10. A plurality according to Claim 9 or elements
30 according to Claim 7 wherein adjacent elements are attached by tearable pressure welded seams.

**Examiner's report to the Comptroller under
Section 17 (The Search Report)**

Application number

9108385.7

Relevant Technical fields

(i) UK Cl (Edition K) B2L

(ii) Int CL (Edition 5) B05C 21/00

Search Examiner

M ELLIOTT

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

6 MAY 1992

Documents considered relevant following a search in respect of claims

1 AT LEAST

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	EP 0334360 A2 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0307932 A1 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0303270 A1 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0303268 A1 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0249444 A2 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0248652 A2 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least
X	EP 0262946 A2 (NAGOYA OIL CHEMICAL CO) Whole document	1 at least

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).